

# PATENT ABSTRACTS OF JAPAN

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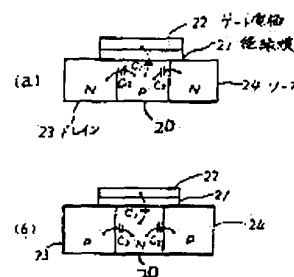
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## (54) MOS TYPE FIELD EFFECT TRANSISTOR

### (57)Abstract:

PURPOSE: To obtain an element having an excellent cut-off characteristic because of its low threshold value at an ON time and its high threshold value at an OFF time, by varying the potential of a channel forming part of MOSFET in coupling with a gate potential.

CONSTITUTION: A capacity between a P region 20 forming a channel of MOSFET and a gate electrode 22 provided on said region with an insulating film 21 interposed between is denoted by C1, and a floating capacity between the P region 20 and a drain electrode 23 and a source electrode 24 is denoted by C2. When a gate potential is varied in an amplitude from 0 to VG, the potential of an N-type substrate rises from an inner potential  $V_{B\phi}$  to  $V_{B\phi} + \{C1/(C1 + C2)\}.VG\}$  by coupling. When Nch-FET is ON, concretely, a threshold value lowers with the rise of the substrate potential, while the threshold value rises when the gate potential is varied from VG to 0 so as to turn FET OFF, and thus a sufficient current cut-off characteristic is obtained. The same operation is shown also in the case of Pch-FET. This method is effective also for FET of a SOI structure provided on an insulator. A floating capacity in a channel forming region is still smaller in this case, and therefore the effect is made easy to realize.



## LEGAL STATUS

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